

CLAIMS

1. A relief printing original plate, comprising:
a substrate;
a photosensitive layer that is laminated on said substrate and
5 that is photosensitive to ultraviolet radiations; and
a mask layer that is laminated on the photosensitive layer, said
mask layer having an ability to absorb both an ultraviolet radiation and
a non-ultraviolet radiation, the ultraviolet absorbability of said mask
layer being deactivatable in response to receiving said non-ultraviolet
10 radiation.
2. The relief printing original plate according to claim 1, wherein
said non-ultraviolet radiation is an infrared radiation.
- 15 3. The relief printing original plate according to claim 2, wherein
said deactivation of the ultraviolet absorbability in response to receiving
said infrared radiation takes place without ablation of the mask layer
when radiation energy of said infrared radiations is in a predetermined
range.
- 20 4. The relief printing original plate according to claim 2, wherein
the deactivation of the ultraviolet absorbability in response to receiving
said infrared radiation takes place along with ablation of the mask layer
when radiation energy of the infrared radiations is higher than a
25 predetermined value.

5. The relief printing original plate according to claim 1, wherein said non-ultraviolet radiation is a light having a wavelength peak in a range of 450 to 700 nm.

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6. The relief printing original plate according to claim 1, wherein an oxygen permeability coefficient of said mask layer is in a range of 1×10^{-17} to 9×10^{-10} .

10 7. The relief printing original plate according to claim 1, wherein said mask layer comprises a binder resin, an acid generator, and an ultraviolet absorber whose ability to absorb the ultraviolet radiations is deactivatable in response to contact with an acid.

15 8. The relief printing original plate according to claim 7, wherein said binder resin comprises at least one selected from the group consisting of cellulose derivatives, polyalkylene oxide derivatives, and polyurethane derivatives.

20 9. The relief printing original plate according to claim 1, further comprising a cap layer on said mask layer.

10. A method for producing a relief printing plate comprising:
providing a printing original plate having a substrate, a
25 photosensitive resin layer having an ultraviolet sensitivity laminated

thereon, and a mask layer laminated thereon, said mask layer having an ability to absorb both an ultraviolet radiation and a non-ultraviolet radiation, the ultraviolet absorbability of said mask layer being deactivatable in response to receiving said non-ultraviolet radiation;

5 irradiating said mask layer with said non-ultraviolet radiation in accordance with an image pattern for printing, to convert said mask layer into a mask image layer having an irradiated area being transparent to said ultraviolet radiation;

 irradiating said photosensitive resin layer with said ultraviolet
10 radiation via said mask image layer; and

 developing said original plate with a developing liquid to remove a part of said photosensitive resin layer in an ultraviolet unirradiated area that has not been irradiated with said ultraviolet radiation and has thus been uncured, whereby forming a resin layer having a relief
15 pattern on said substrate, to obtain said relief printing plate.

11. The method according to claim 10, wherein said mask layer has an infrared absorbability as said non-ultraviolet absorbability, and wherein an infrared irradiation is performed as said non-ultraviolet
20 irradiation for converting said mask layer into said mask image layer.

12. The method according to claim 11, wherein said infrared irradiation includes controlling radiation energy of the infrared radiation in a predetermined range so that the deactivation of the ultraviolet
25 absorbability in said mask layer by said infrared irradiation takes place

without ablation of said mask layer.

13. The method according to claim 11, wherein said infrared irradiation includes controlling radiation energy of the infrared radiation to higher than a predetermined value so that the deactivation of the ultraviolet absorbability in said mask layer by said infrared irradiation takes place along with ablation of said mask layer.
14. The method according to claim 10, wherein an oxygen permeability coefficient of said mask layer is adjusted in a range of 1×10^{-17} to 9×10^{-10} .
15. The method according to claim 10, wherein said mask layer is made from a composition containing at least a binder resin, an acid generator, and an ultraviolet absorber whose ability to absorb the ultraviolet radiations is deactivatable in response to contact with an acid.